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Procedia - Social and Behavioral Sciences 137 (2014) 93 – 99

Procedia
Social and Behavioral Sciences

SEC-IASR 2013

Ecocentric reflections on the realization of environmental education

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Abstract

Regarded as a revolutionary current, deep ecology predicted that a new environmental ethics will change the paradigms of Western philosophical thinking, anthropocentric par excellence, with a new perspective to treat the relationship between man and nature. In the light of this view, nature is endowed with intrinsic value which people must respect. Deep ecology is based on a concept of an eco-centric nature that includes both an anthropocentric, as well as a non-human perspective, extending it preoccupations across biodiversity, and being concerned with a process of deep problematization man's relationship with nature. Extending the concept of value on everything that is alive (people, animals, plants, all of which are worthy of moral consideration and respect, and even on non-living entities) can create misunderstanding and confusions at the level of the environmental attitudes and behaviour of children. Starting from the theoretical problems presented earlier, we will investigate in what measure they are found in the Romanian curricula, and the manner in which ecological education is being studied it in the Romanian school. It is true that education cannot solve the problems of the environment, but it can ameliorate them, because through an ecological education it is easier and more economic to prevent, than to repair and to ameliorate the damages brought to nature by the adult generations. In the pedagogical literature, there are four types of intercessions of implementing the ecological education in the process of study. Even though the Romanian curricula has created all the premises for the approach of the ecological education through all the four types of intercessions, to reach the objectives of this education remain still at the preference and judgment of the teaching staff. The problems are: “How well prepared are the teachers to put into practice the ecological education at an intellectual and attitudinal level through the intercessions mentioned above, with efficient results?”, and “How much do they see in it a foreground problem in the building up and development of the young's generation personality?”.

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Selection and peer-review under responsibility of the Sports, Education, Culture-Interdisciplinary Approaches in Scientific Research Conference.

Keywords: Environmental ethics, environmental education, attitude of respect for nature, curriculum, ecological awareness;

1. Introduction

Beside the so criticized shallow ecology which focuses more on pollution and the resource depletion (in the countries where this is implemented, there is a massive preoccupation for externalizing the sources and the expenses caused by their own

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pollution to the other countries from the third world), deep ecology is based on a concept of an eco-centric nature that includes both an anthropocentric, as well as a non-human perspective, extending its preoccupations across biodiversity, and being concerned with the process of deep problematization of man's relationship with nature. The main principles of the deep ecology were formulated for the first time by Arne Naess and George Sessions in 1984, and they were later on published by Naess in 1986. They are: "1) The wellbeing and blossoming of the human and non-human life are values in themselves; 2) The richness and the diversity of the forms of life contribute to reaching these values and thus are also values in themselves; 3) Man has no right to reduce this richness and diversity only to satisfy his own vital needs; 4) The flourishing of life and of the human culture are compatible with a drastically diminish of the human population. The flourishing of the non-human life requires this; 5) The human intervention into the non-human world is excessive and this situation becomes worser by the minute; 6) We have to change very seriously our political orientations on what concerns the economic, technologic and ideological structures. The result of this will be totally different from what we experience today; 7) The ideological change consists mainly in offering value to the quality of life than to look constantly for a higher level of life. There will be needed a serious understanding of the difference between big and great; 8) Those who believe in what was just stated above have a direct and indirect duty to work towards changing all of these." (as cited by McElroy, 2002, pp. 2).

2. Philosophical Premises

Even in this orientation we can distinguish between two major currents: biocentrism and ecocentrism. While biocentrism extends the term of value on all that is alive: humans, animals, plants, all of which are worthy of moral consideration and respect, the ecocentrism states that the whole nature is superior to the individual. This means that it extends the moral sphere even upon the non-human entities, thus taking into consideration nature as a whole with all its moral value and significance.

2.1. *Paul Taylor's Ethics*

Biocentrism considers the human beings as being just a part of the living world, most of it being made up of the other non-human entities. Together they make up the totality of the living beings or the biosphere which has an intrinsic value, a property which imposes respecting its dignity. So, all the living beings are important from the moral point of view because they have intrinsic value. Biocentrism is promoting the idea of equality at the level of the whole biosphere. Thus it results that humans have the duty to respect the living nature and to protect it. The exponents of this current, P. Taylor and A. Naess and many others, state that the species, the ecosystems and the biosphere are carriers of intrinsic value because the individual is only a part of the whole. Out of the wish to establish a living connection with nature, the philosophers named above, tried to develop an extended ecological conscience which is based on the concept of intrinsic value, of the Self and, in A. Naess' vision, it represents an expansion of the individual self to the self which embraces all the life forms from the planet, together with their individuality (apud McElroy, 2002, pp. 3). Beside biocentrism, the ecocentrism highlights even more the idea that humans are just a part of the ecosphere they are depended on, which is why it is considered to be the most radical current of the Deep Ecology movement.

What Taylor wants to achieve is a life focused ethics. In other words, all the living beings gain moral consideration which attracts from the human side a series of direct obligations towards them. In this category, Taylor introduces "all the living organisms, and some specific groups of organism". He classifies the environmental ethics into two categories: the human centered (or anthropocentric) environmental ethics and the life centered (or biocentric) ethics (Taylor, 2011, pp. 11-12). While the human centered ecological ethics involves duties and obligations that some human beings have towards other human beings, the biocentric ethics involves a series of rules and norms concerning the way in which humans treat other living beings from nature. In this final situation, Taylor focuses on wild animals and plants which humans should protect – especially those natural ecosystems which are not found under the control of the human beings. The life centered ethics is not subordinate to the human centered ethics. Taylor's view is different then that of Regan or that of Singer. From Taylor's perspective, the moral consideration is held by wild animals and by plants, but without having moral rights because from his perspective only humans, the moral agents, have rights. The fact that only human beings are worthy of respect denotes the Kantian nature of this idea. The ethical model used by Taylor in order to achieve an environmental ethics is the human ethics.

The link between the two types of ethics – the human and the environmental ethics – is represented by the bio-centric concept used in nature. From this perspective, both the moral agents and the moral subjects are part of a living community extended at a planetary level. So, people are seen as being part of nature and not as separate, distinct, and superior beings to the non-human and to the other living things. This idea is supported also by the arguments of the evolutionary biology and of the bioculture, understood as being that ensemble of practices and institutions by means of which the human beings use animals and plants to satisfy their own needs (agriculture, animal growing, the exploitation of the forest, the use of animals in scientific research, etc.). Taylor is preoccupied both with the human ethics which is related to interhuman relationships, and the environmental ethics which deals with the relationships between man and nature. He is also interested in the bioculture ethics which deals with the way in which people treat the animals and the plants from an artificial environment which is completely controlled by humans. The fact that people can manipulate the environmental conditions and the organisms by means of hybridization, reproduction programs and other genetic means for creating types of animals and plants which will better serve their purposes, determines Taylor to develop even a bioculture ethics. These practices are living examples of “conquering” and of “enslaving” nature. But these animals and plants that belong to that bioculture are, in Taylor’s concept, entities with rights, the same as the animals and plants from the natural ecosystems. From here it results that humans have obligations and responsibilities towards the wellbeing of animals and plants that are under their direct control, they cannot exercise their power as they please and they are not even authorized to do so. Most of the times, between these animals and plants of the bioculture and humans, there is an affectionate relationship, feelings that overlap certain responsibilities, a thing which indicates that humans have accepted that they are indeed in charge with assuring the plants’ and animals’ wellbeing. Beyond the instrumental value of these animals and plants that are being used to reach certain goals, humans detect a certain inherent dignity of these non-human beings which represents the base for developing the attitude of respect towards nature. The same happens in the case of the non-human beings from the wilderness (Taylor, 2011, pp. 45-58).

The attitude of respect towards nature is the one that needs to be adopted because from the bio-centric perspective on nature. The living organisms have an inherent value which shows that this is the only way to treat beings seen as autonomous centers of life. In other words, according to the previous arguments, the attitude of respect towards nature is understandable only in the biocentrism that is represented by Taylor as a concept of the world which satisfies a series of criteria upon which an ethical conception is being accepted. Along side its complexity, consistency, and clarity, biocentrism is characterized also by its coherence and compatibility with the modern concepts over nature as they are being formulated by the evolutionary theory and by the ecology of the ecosystems. P.W. Taylor conceives the protection of nature based on the idea of respect, but allows a minimum degree of exploiting it, as being the smallest harm one can do, which means that the attitude of respect towards nature must not be understood as one that absolutely does not allow any intervention upon it. Taylor wanted to pinpoint the fact that there are some human actions that do not violate the rights and interests of humans, but that cause a great deal of harm to the other living beings from nature. He hopes that his biocentric theory will cause changes at the level of the ethic ideal which in itself will cause changes at the psychological and behavioural level of humans, on what concerns their relationship with nature (Taylor, 2011).

2.2. *J.B. Callicott’s Ethics*

Like all the other environmental philosophers, Callicott outlines his own ethical concept which proposes a more radical perspective than the last one. In his vision, a true universal ethics cannot be isolated by a conceptual matrix. He believes that the ideal or the model of human nature targeted by this universal, pragmatic and functional perspective of ethics is given by “the rightful, natural and intentional place of man in the world” (Callicott, 1986, pp. 383), thus placing man in the natural context, for shadowing an ecocentric perspective. For him, the environmental ethics must have a series of characteristics: to be consistent so as to be compelling and accepted and to follow the consistency of the ensemble of theories which consider that the destruction of the environment represents a moral issue. In order to be compelling and accepted, the environmental ethics must address directly and must state that the problem is of a moral nature, as the biocide is caused by the massive extinction of species, by their biological impoverishment, and, in some cases, by their eradication. All of these are caused by the deterioration of the environment by means of pollution, the destruction of food and life conditions. All of these represent a moral problem if the living beings lack a series of minimal rights of wellbeing.

Callicott identifies three main theories of environmental ethics: (1) The prolonged and traditional humanism – it involves the Western human centered ethics in which the moral consideration is given only to human beings; (2) The Extensionism – which extends the moral importance and the moral rights even over the non-human beings; (3) The eco-centrism – where moral consideration is given to the whole ecosystem, and also to its various sub-ecosystems and to the human and non-human beings taken separately. From these three perspectives, the author considers that the eco-centrism is the most consistent ethical theory due to its awareness of the environmental problems, is the most adequate because it addresses directly the moral problems and it is the most practicable because of the limits imposed to the human behaviour which will help the environment to thrive, and the human beings to live in harmony (Callicott, 1986, pp. 392).

Callicott criticized severally the traditional humanism which has developed the mentality of an exploiter, superior to the other non-human beings, and also to the non- living entities which belong to the environment, with a destructive and consumerist behaviour. Pollution and some of the strongest technologies, the consumption of the resources, are just some of the problems that the human focused ethics has generated in nature. Even if there are some supporters of this current that have a pro-nature orientation and that might correct their behaviour and attitude towards nature and living beings, Callicott brings accuses to this theory. He criticizes the old ethics which find equally moral all the human beings and he also criticizes T. Regan for pinpointing the humanistic perspective of the environment which has as a result “not an environmental ethics, but an ethics upon how to use the environment, a management ethics” (Callicott, 1986, pp. 393). A severe critic is brought to extensionism and its two phases: the first – which brings moral consideration for the A severe critic is brought to extensionism and its two phases: the first – which brings moral consideration to the animals with sensibility or that might be subject to life; the second – the ethic based on life which extends the moral value over all the living beings. Callicott criticizes Singer and Regan first of all because they have extended morality only over the animals that can have sensibility or that might be subject to life. Thus, the invertebrate animals, the plants and the rest of the ecosystem do not have moral consideration, even though they contribute to the sustainability and survival of the human and non-human beings. On the other side, his critic refers to the fact that these philosophers allow the exploitation of animals than to protect them so as not to cause them useless pain or to assure their wellbeing through minimal rights. He criticizes the fact that by means of this theory of rights, it does not make a distinction between the wild and the domestic animals. Than he brings into discussion the problem that both Singer and Regan have analyzed, if the predator animals should be extinct. The answer is no, because it will still not diminish the pain of nature. The plants and nature as a whole will still suffer. Callicott takes one of Singer’s arguments: “it would be enough for people to stop killing and being cruel to animals” (as cited by Callicott, 1986, pp. 398).

As supporters of animals’ freedom/ rights, Singer and Regan used to criticize the fact that the moral agents have indirect duties towards the sensitive animals. There are some indirect duties towards plants or towards the animals that are not sensitive, which are also part of the biotic community. The rest of the biotic community will be handled in favour of the privileged class of sensitive animals. That is why Singer and Regan are criticized. They leave open the problem of the inherent value of individuals that are not sensitive or subject to life (Callicott, 1986, pp. 397-401). Callicott extends even more than Taylor the biotic community to the whole natural ecosystem, including even the non-living beings, like a global system owed to technology and to the modern community. Sometimes, Callicott makes references to the whole universe, “to this cosmic evolutionary, ecologic painting of the planet which can stimulate some moral feelings such as affection, respect, love, sympathy, even patriotism with whom the human mammals are genetically endowed” (Callicott, 1986, pp. 407). From the perspective of modern biology, the biotic community of Earth is represented by the tribe, and each of its species is a separate clan. Thus, environmental ethics would become more holistic, more preoccupied with the biotic community and less with the individual. The community becomes the object of respect and of moral consideration. “The ethical ground” makes humans see the wellbeing of nature as a standard for the moral quality, for the good and evil caused by the human actions. He states that each time humans get involved in a project, be it personal or public, they must evaluate the impact on the environment, than they must choose the actions that will increase the diversity, integrity, beauty, stability, health, and wellbeing of the biotic community or of the whole ecosystem (Callicott, 1986, pp. 408-409).

The environmental ethics does not forbid the use of the environment, but there are two limits to take into consideration: the first in the ensemble implies that the use of the environment must increase the diversity, integrity, beauty, stability of the biotic community; from this point of view, humans’ professions and the use of the environment from the perspective of the environment’s quality seen as a whole, must not be destructive; the second

one is the limitation of the human individualistic ethics to the use of the environment, trees and the animals for the human purposes; this must be selected with care, executed with skills and kindness without causing destruction. Each component of the biotic community or of the ecosystem seen as a whole deserved to be used with respect. Callicott states that the eco-systemic ethics is practicable even today. Among his recommendations, he mentions first the vegetarianism that must be used not only to diminish famine in the world, but also to reduce the animals' sufferance, to better conduct the solar energy through the human body, to free more lands and to emanate more solar energy which is needed for the restructuring of the natural community. Callicott recommends mostly avoiding the fast-food products (they are made up of cow carcass) not only for diminishing of animals' pain, but also because they are produced on marshy forests. "We can better see the contribution of the ecocentric ethics in the large number of worldly things, the trivial decisions we take each day. To adopt an ecocentric ethics will impact the whole life of a person" (Callicott, 1986, pp. 417). Callicott pinpoints towards the fact that humans have the individual and collective responsibility to prevent the destruction of nature by preserving the biological diversity of Earth.

During his analysis, Callicott has search in fact a type of ecological ethics that would include the three criteria that should be met by a valid ethical theory: consistency, adequacy and practicability. So, by means of this filter, he has distinguished between three categories of environmental ethics that he was able to identify. Callicott supports both humanistic and extensional theories, which have partially met these criteria and even the ecocentrism based on the concept of Leopold, which he recommends as being the best ecological ethics that might help the society to overcome the contemporary crisis of the environment.

Starting from these observations, this paper intends to outline the necessity of an interdisciplinary approach over the ecological ethics and over the ecological education, so as to accomplish a quality education by understanding deeply the ethical basis of the relationships between man and nature and the means to use them in the didactic activity.

3. Research hypothesis, objectives and research methodology

Even though the new philosophical currents (biocentrism and ecocentrism) plea for the recognition of the intrinsic values of the non- human being and the expansion of the moral sphere over them as well, most of the times, these remain some concepts and theories accessible only to some categories of people and specialists. The common people use to guide their behaviour according to some religious, scientific and anthropocentric mentalities and concepts that place man above everything that surrounds him. This type of behaviour had a series of severe consequences over the balance of our planet's ecosystem. The hypothesis from which this paper started, takes into consideration the fact that there is a certain influence manifested by the educational environment which is represented by the anthropocentric mentality and attitude towards non-human beings and their rights. This is being promoted on the students' ecological attitude by schools and implicitly by grown-ups, be their teachers or parents,. In this ascertaining research, based on a questionnaire, the main goal is to evaluate the development of the attitude of children towards respecting nature, especially plants, and to identify the discrepancies that emerge at the level of the ecological conscience between the rural and the urban area. Also, some of the psycho-pedagogical implications of the results obtained will be identified so as to assure a better understanding of the relationships between man and the non-human beings, and to improve the attitude of students towards them.

The research sample consisted of secondary school pupils from the urban and rural environment, being stratified according to criteria such as: school level – secondary school; environment – urban and rural; the class, as follows: from the urban environment – 5th grade – 30 subjects, 6th grade – 26 subjects, 7th grade – 26 subjects, 8th grade – 27 subjects from "Ștefan cel Mare" and "Calistrat Hogaș" schools of Galați, and from the rural environment respectively: 5th grade – 30 subjects, 6th grade – 26 subjects, 7th grade – 26 subjects, 8th grade – 27 subjects from the schools in Pechea, Piscu and T. Vladimirescu, in the county of Galați, among which 119 boys and 99 girls. The level of the parents' education was not considered relevant because they had received an anthropocentric type of education which would not have hindered the children's way of thinking and of acting.

The questionnaire presents a case in which a child destroys a plant (You spot one of your friends while he is tearing some roses from the school garden which you and your classmates have cleaned and dug. What would you do?) and also 12 possible answers (1. you pretend not to see him because you are scared to intervene; 2. you tell him that he is not doing a right thing; 3. you tell your class master or one of your parents; 4. you try to make the person who stole the roses to confess his mistake; 5. you intervene because plants are being that should be to live in their

natural environment; 6. you intervene because it is your duty to protect the landscape; 7. you do not care what your friend is doing and you keep on going; 8. you intervene because you think that flowers have an aesthetic value and that they should be respected as such; 9. you do not intervene because it is not your duty to protect the landscapes; 10. you do not intervene because it is the school master's duty to protect the landscapes; 11. you do not intervene because you find the situation amusing and you will even encourage your friend; 12. you call for the police and you accuse your friend of destroying the landscape) and the 8 attitudes that result from this situation – the moral obligation based on fear of punishment, the moral obligation as a result of the respect for other humans, the moral obligation as a result of the respect one has for the non-human beings, the respect for rules, the moral decision, the unjustified decision, the consistency of the moral conscience, the inconsistency of the moral conscience – and that may be present in each individual for that specific situation. For each attitude or opinion expressed for the situation above, the student has the possibility to choose one of the three possibilities offered: the attitude might be true for him, partially true or false.

4. Results and discussion

On what concerns the moral obligation based on fear of punishment, we may notice that the values regarding the pupils from the urban secondary school are a little bit lower than those for the children from the rural environment (for the 5th grade – 90% for the urban area and 60% for the rural area; for the 8th grade – 51.85% for the urban environment and 70.38% for the rural environment). The fact that most of the children have chosen as an answer “it is not true for me” indicates that the degree of anxiety has decreased relative to the act of destroying and aggressing the plants, even though the little ones seem to want more to intervene and protect the environment. Like in the first situation, the percentage of children that have answered to the question regarding respecting the rules was higher for the small classes than for the big ones. In this case, the values regarding the pupils from the urban area were higher than those of the children from the rural one and only for the 8th grade do the figures revert. Most of the children tend to be pro respecting the rules (for the 5th grade – 88.33% for the urban area, 83.3% for the rural one, respectively for the 8th grade – 59.26% for the urban and 70.38% for the rural area for I2) and they consider it is their duty to intervene and protect the green spots (for the 5th grade – 80% for the urban area, 56.67% for the rural one, respectively – 48.15% for the urban area, 51.85% for the rural one for the 8th grade, I6). These answers are explained by the fact that on the one hand, the pupils from the rural area are given the duty to protect the vegetables and the fruits instead of the ornamental plants, and on the other hand, we are dealing with a decreased interest in ecological education correlated with the moral education and also with the main concerns of the children from the 8th grade to graduate the secondary school and go to high school. On what concerns the third question, it represents more of a moral obligation as a result of the respect for other humans, which proves affection and respect towards adults. The values are higher for the children from the rural area, and especially for those from the higher grades, and the answer given was “true for me”. While for the urban area the values revert (for the 5th grade – 76.67% for the urban area, 46.67% for the rural one, respectively for the 8th grade – 48.15% for the urban area and 66.67% for the rural one). On what concerns the moral obligation resulted of the respect one has for the non-human beings, the pupils show compassion for these as when they are taken from their natural environment. The values for the children from the smaller classes and rural area are higher which proves a higher capacity to perceive plants as non-human beings which are capable of suffering, of having a supreme goal – to survive – and of having an intrinsic moral value (for the 5th grade – 80% for the urban area, 56.67% for the rural one, respectively for the 8th grade – 48.15% for the urban area, 51.85% for the rural one – true and partially true for I6). The number decreases for the bigger grades also because of the inconsistencies in applying an ecological education. The moral decision is expressed in the answers at I4 from which we can conclude that the pupils from the smaller grades seem more determined in making the culprit confess his crime (for the 5th grade – 80% for the urban area, 60% for the rural one, and respectively, for the 8th grade – 55.56% for both the urban and the rural area). The I7 questions express an unfounded decision by the fact that the majority of children expresses its lack of care towards those that decide to destroy the plants which cannot defend themselves or which cannot be protected and they even think that it is the duty of others to do so. The higher numbers were shown for the bigger grades where the majority of children have chosen as an answer “it is not true for me”. The higher values were registered for the pupils from the rural area from the bigger grades (for the 5th grade – 80% for the urban area, 50% for the rural one, respectively, for the 8th grade – 62.96% for the urban area, 77.78% for the rural one). The consistency of the moral conscience is having a higher value for the small grades, with a

slight lower value for the urban area than the rural one because the majority of children thinks that it is true or partially true the fact that plants are beings which need to be respected be it even for this (I7 for the 5th grade - 93.33% for the urban area, 66.67% for the rural one, respectively, for the 8th grade - 37.04% for the urban area, 55.56% for the rural area), and they do not find it useful to accuse a person that destroys the green spots. This is in consistency with the low moral value they give to the non-human beings (I12, for the 5th grade - 70% for the urban area, 96.67% for the rural one; for the 8th grade - 55.56% for the urban area and 37.04% for the rural one). The inconsistency of the moral conscience (I9, I10, I11) is reversely proportional to its consistency, the lower values registered at the urban high school level of the smaller classes proves the desire to stop the aggressive and destructive attitudes of the young people towards nature, even though there are pupils which encourage the aggressor.

5. Instead of Conclusions

Today we are trying to re-establish the place of man in nature and his relationships with it. Even if we are to rethink the whole philosophic system regarding the relation between man and nature, if we are not going to implement them in the educational system at an early age, we will not manage to diminish this crisis. The presence of the concepts concerning the problematic of the animals' rights in the school curriculum would represent a first step towards overcoming this situation. Most of the times, these concepts are included, but in the extended curriculum, thus being left at the decision of each teacher (Caciuc, 2011, pp. 199-222). So, it arises the problem of how will the teachers manage to build in their pupils an ecologic attitude and behavior when themselves are not properly prepared from this point of view. Therefore it is necessary that in the initial training of future teachers, to pinpoint the importance of building an ecological attitude. In order to be able to build up young characters, it is important to initially and continuously train the teachers from the perspective of the ecological ethics and education, so as to prevent the cases in which the teachers has to plea for a cause that is against their own belief and mentality. The shaping of a set of values which would give nature and its components an axiological character, cannot be done without implementing in the teachers' general and psycho-pedagogical culture the elements of ecological ethics. Only by these means will the teachers be able to build up their students' personality so as to pay attention to and respect nature and to make precautions decisions that will serve not only the present generations, but also the future ones, even if school curriculum implies that ecological education should be done in an implicit way. Only by outlining a curriculum based on values, in which the intrinsic value of nature represents a priority, we will be able to build up a correct attitude towards nature and the non-human beings, based on respect, and we will manage to diminish the aggressiveness of young people towards animals. The future specialists and professionals need an eco-centric mentality and vision as so to not base their future development strategies on aggressive decisions.

References

- Caciuc, V.T. (2011). *Etică și educație ecologică – o abordare interdisciplinară* (unpublished doctoral dissertation). Faculty of Philosophy, University of Bucharest. Romania.
- Callicott, J.B. (1986). The Search for an Environmental Ethic. In T. Regan (ed.) *Matters of Life and Death. New Introductory Essays in Moral Philosophy*. New York: Random House.
- McElroy, M.W. (2002). "Deep" Knowledge Management. Available at <http://www.macroinnovation.com/images/DeepKMbyM.W.McElroy.pdf>.
- Taylor, P. (2011). *Respect for Nature. A Theory of Environmental Ethics*. Princeton NJ: Princeton University Press.